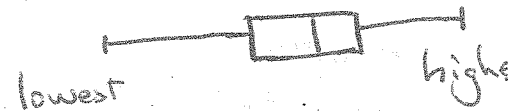
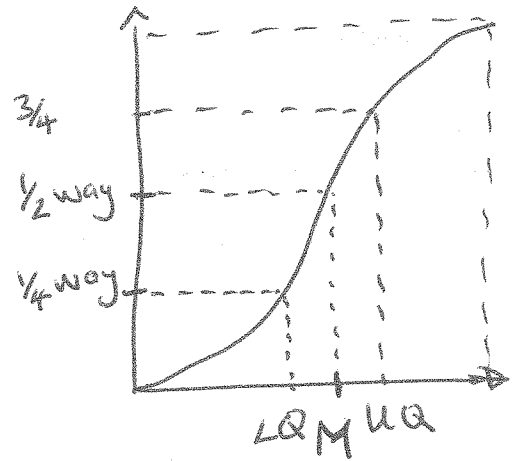


# M4 = 34 days to go!

10 The cumulative frequency table gives data about the length of time it takes for 50 workers to travel to work one morning.

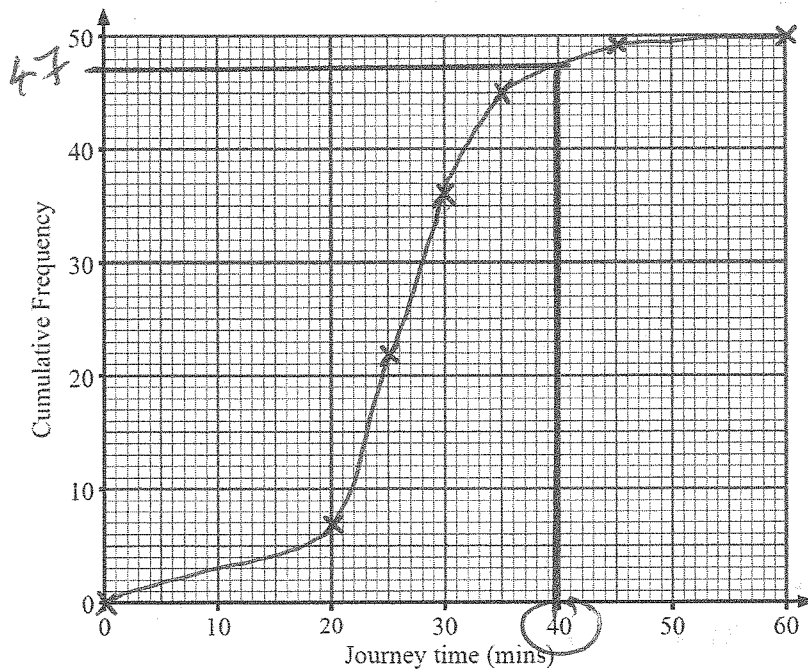
| Journey time ( $t$ minutes) | Cumulative Frequency |
|-----------------------------|----------------------|
| $t \leq 20$                 | 7                    |
| $t \leq 25$                 | 22                   |
| $t \leq 30$                 | 36                   |
| $t \leq 35$                 | 45                   |
| $t \leq 45$                 | 49                   |
| $t \leq 60$                 | 50                   |

Remember.



Smooth curve

(a) On the graph paper below, draw a cumulative frequency graph to illustrate the data.



[3]

You can make a BOX PLOT from a cumulative frequency curve.

(b) Use the graph to estimate the percentage of workers whose journey time was longer than 40 minutes.

Answer 6 % [2]

47 workers less than 40mins.

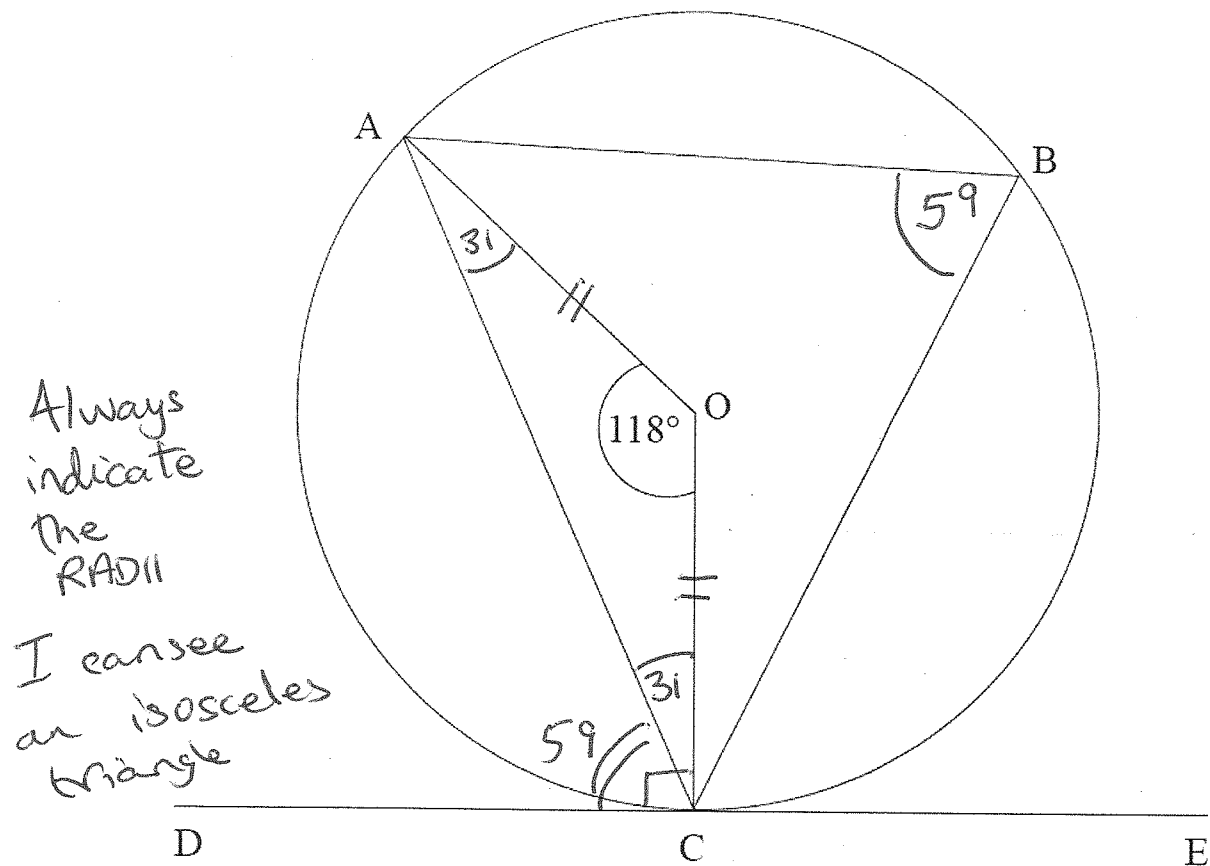
3 workers longer than 40mins

$$\frac{3}{50} = 6\%$$

O is the centre of the circle through A, B and C.

DCE is a tangent to the circle at C.

Angle AOC =  $118^\circ$



- (i) Find the size of angle ACD.  
Give a reason for each step.

Isosceles triangle so  $118$  so  $31^\circ$  for each  
The tangent meets point C at  $\perp 90^\circ$

$$90 - 31$$

Answer Angle  $\hat{ACD} = \underline{59}^\circ$

Reasons:

or  $\hat{ABC}$  is  $\frac{1}{2}$  of  $\hat{AOC}$  because  
angle at centre is twice at circumference  
then Alternate Segment Theorem  
 $\hat{ACD} = \hat{ABC}$

[3]